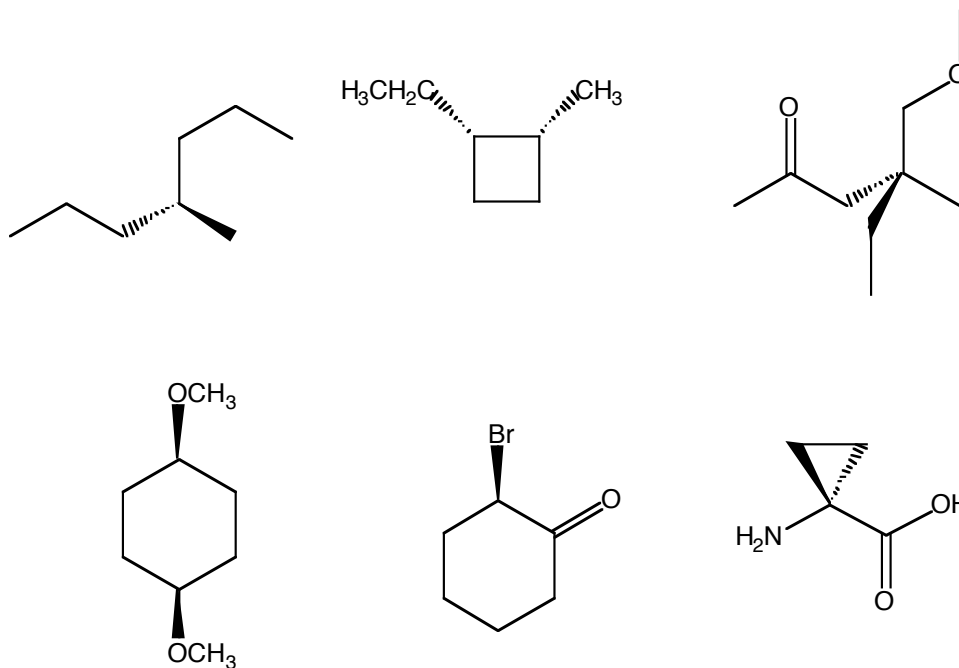


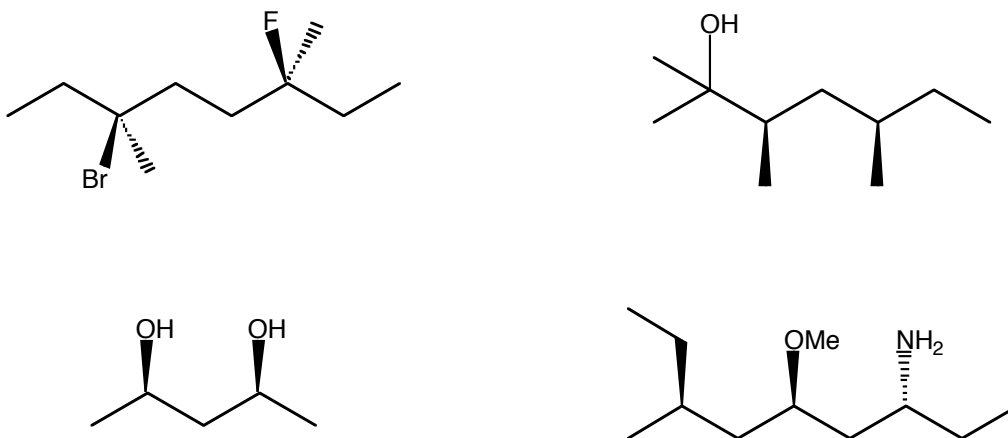
Chemistry 211 – Problem Set 5 – Due November 7th at 5:00 PM

1) Which of the following molecules are optically active?



2) For the chiral compounds you found in (1), determine the absolute stereochemistry of every asymmetric carbon. Finally, try to draw their Fischer projections – The cyclic ones may be a bit tricky...

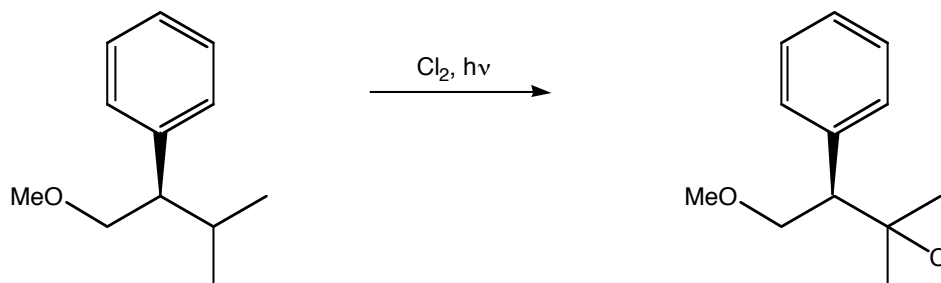
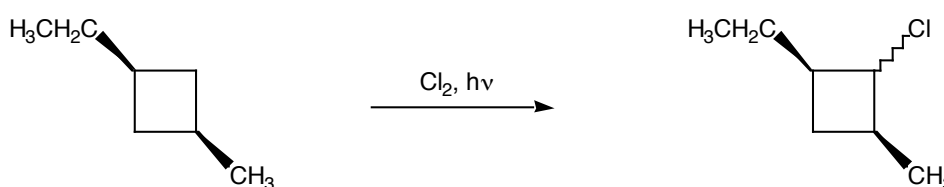
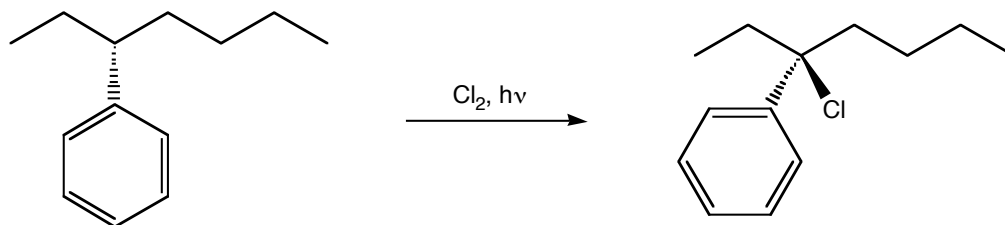
3) For the following compounds:



- Draw their Fischer projections.
- Determine the absolute stereochemistry of all asymmetric carbons.
- How many enantiomers and diastereomers does each compound have?
- Draw their enantiomers.

- e) Draw two diastereomers for each compound.
 f) Are there any meso compounds?

4) Consider the following mono-chlorination reactions:



For each reaction, determine if the product will be (a) enantiomerically pure (i.e., only one enantiomer), (b) a racemic mixture, or (c) a mixture of diastereomers. In all cases, determine the absolute stereochemistry of the chiral centers in the reactants and products. If your answer is (c) for any of the products, try to determine which diastereomer will be obtained in higher percentage.